Issue   **01 (UK-1)**   *Status*   **Closed**

Author: Julian Fowler   *Disposition:*   Accepted

Clause: whole document

Class'n: Editorial
                                    whole document

Description:

The document does not conform to the requirements of the ISO/IEC Directives, Part 3 (1997 edition).

Proposed resolution:

Make all necessary changes to the wording, layout and format of the document as required by Directives 3 and their interpretation by the ISO 10303/SC4 Supplementary Directives (current versions: QC N048 and QC N049).

Actual resolution:

Changes have been made in the following areas. "Boilerplate" text has been modified in the Foreword, the introduction to clause 2, and the introductions to the sub-clauses of clause 3. The layout and numbering of clause 3 definitions has been updated. Every note or example is preceded by the word NOTE or EXAMPLE. Numbering of examples has been changed. Issue closed by final editorial review at 41/43/44 workshop in Long Beach, July 21-23.

Issue   **02 (UK-2)**   *Status*   **Closed**

Author: Julian Fowler   *Disposition:*   Accepted

Clause: Foreword

Class'n: Editorial
                                    Foreword

Description:

The list of Parts of ISO 10303 is not up to date.

Proposed resolution:

Replace the explicit list of parts by a reference (URL) to SOLIS. This can follow the pattern set for access to the EXPRESS schemas and the short names. Note: a change to the Supplementary Directives to enable this resolution is under consideration by the Quality Committee.

Actual resolution:

Proposed resolution is accepted, but has to be agreed by Parts 41 and 44, and by QC. SC4 Secretariat has an action to address this. The text of the Foreword has been updated - URL refers to SOLIS.

Issue   **03 (UK-3)**   *Status*   **Closed**

Author: Julian Fowler   *Disposition:*   Accepted

Clause: whole document

Class'n: Editorial

                                        whole document

Description:

The narrative text of Part 43 is not particularly helpful in explaining the resource constructs provided. Too much "STEP jargon" is used, and there is too much emphasis on shape/geometry. In the light of the importance of this part in the STEP data architecture it is important that there should be a broadly-based editorial review of this part, involving experts who are *not* particulants in the development of Part 43, or in its usage in integration or interpretation.

Proposed resolution:

Conduct a detailed review of the quality of the textual portions of the document (particularly the definitions of entity data types and their accompanying notes and examples).

Actual resolution:

Many improvements to definitions and narrative text have been included.

Issue	**04 (UK-4)**	*Status*	**Closed**

Author: Julian Fowler   *Disposition:*   Accepted

Clause: Introduction

Class'n: Editorial

                                        Introduction

Description:

The Introduction to this part provides too much detail about the technical content (much of which is repeated, using different wording, later in the document). The text reads more like a scope statement.

Proposed resolution:

Rewrite the "non-boilerplate" portion of the Introduction to give a shorter overview of the contents of the part. (Much of the current Introduction can, however, be reused in making the scope clearer - see issue JPF-5.) The Introduction is an appropriate place to characterize the position of the representation_schema in the STEP data architecture - see issue JPF-41-5 against ISO NWI/CD 10303-41:1997.

Actual resolution:

Most of the Introduction has been deleted, to be replaced by a one paragraph summary of the Part plus a schema-level EXPRESS-G diagram showing the relationship to the core schemas of the IRs. The contents of the Introduction were reviewed and approved by the 41/43/44 editorial meeting held in Long Beach (7/98).

Issue	**05 (UK-5)**	*Status*	**Closed**

Author: Julian Fowler   *Disposition:*   Accepted

Clause: 1

Class'n: Editorial
                                              1
Description:

The Scope statement is very difficult to understand, for those without detailed knowledge of ISO 10303. In particular, the term "representation" is over-used (elsewhere in the part, as well). Confusion arises from the existence of this term as (a) part of the name of the Part, (b) the name of the schema, (c) a term defined in clause 3, (d) the name of an entity type.

Proposed resolution:

Reword Scope statement to make it more understandable.

Actual resolution:

Some minor changes/improvements have been made to the Scope statement.

Issue	**06 (UK-6)**	*Status*	**Closed**

Author: Julian Fowler   *Disposition:*   Deferred

Clause: 4.4.8

Class'n: Minor Technical
                                              4.4.8
Description:

The entity type compound_representation_item is not required in a conceptual resource model. Representation, representation_relationship, representation_item, and representation_item_relationship provide all the necessary constructs to aggregate representation_items. The entity type compound_representation_item has no product data semantics specified, it is a syntactic structure only. Inclusion of this entity data type would require it to be "reverse integrated" into the IRs in order to maintain consistency of syntactic and semantic modelling (for example, cartesian_point in Part 42 should be redeclared as a constrained subtype of compound_representation_item).

Proposed resolution:

Remove this entity data type. If there are requirements for list, set or table structures *with well defined product data semantics* these can be defined in other 40- or 100-series parts.

Actual resolution:

Deferred to a future edition of this part.

Issue	**07 (UK-7)**	*Status*	**Closed**

Author: Julian Fowler   *Disposition:*   Rejected

Clause: 4.4.1, 4.4.18

Class'n: Minor Technical
                                              4.4.1, 4.4.18
Description:

The use of a separate construct to specify the identification of a representation is inconsistent with the rest of the STEP IRs. Either this should be a local (.id) attribute, or a more generic, flexible mechanism for assignment of ids should be applied to all IR constructs.

Proposed resolution:

Either:
(a) add a local .id attribute, or
(b) develop a general mechanism for assignment of identifiers
In the short term, option (a) is preferred

Actual resolution:

Closed by resolution to issue 24.

Issue	**08 (UK-8)**	*Status*	**Closed**
Author:	Julian Fowler	*Disposition:*	Rejected
Clause:	4.4.1, 4.4.19		
Class'n:	Minor Technical	4.4.1, 4.4.19	

Description:

The use of a separate construct to specify the description of a representation is inconsistent with the rest of the STEP IRs. Either this should be a local (.description) attribute, or a more generic, flexible mechanism for assignment of ids should be applied to all IR constructs.

Proposed resolution:

Either:
(a) add a local .descrption attribute, or
(b) develop a general mechanism for assignment of descriptions
In the short term, option (a) is preferred

Actual resolution:

Closed by resolution to issue 26.

Issue	**09 (UK-9)**	*Status*	**Closed**
Author:	Julian Fowler	*Disposition:*	Deferred
Clause:	4.4.2, 4.4.15, 4.4.16		
Class'n:	Minor Technical	4.4.2, 4.4.15, 4.4.16	

Description:

It is not clear whether there is a relationship between the ideas of uncertainty as defined in Part 43, and of data environment and qualified measures in Part 45. The Part 45 constructs in this area appear to be *more* generic than those in Part 43, which conflicts with the assumed integration architecture of STEP.

Proposed resolution:

Review these constructs against Part 45, and revise as necessary. NOTE: it is recognized that any consequent changes to Part 45 should have to be addressed through the SEDS process.

Actual resolution:

Technical issues deferred to a future release. See also UK-17.

Issue	**10 (UK-10)**	*Status*	**Transferred**
Author:	Julian Fowler	*Disposition:*	Accepted
Clause:	4.4.13		
Class'n:	Major Technical	4.4.13	

Description:

The meaning and intended usage of this entity type are not clear from its definition.

Proposed resolution:

Replace definition with one that is useful!

Actual resolution:

An improved definition has been developed, with examples. Reclassified as Major Technical as the solution involves modification to EXPRESS: this no longer a subtype of property_definition_representation - the current version appears to change the role that the representation plays in property_definition_represention. There is an open issue arising from this solution (to be discussed at Bad Aibling) - should the domain of .definition be property_definition or represented_definition. Note also a possible Part 41 issue: which schema should the represented_definition SELECT type be in? Agreed at the Bad Aibling meeting to generalize the .definition attribute to represented_definition, and to transfer this entity data type to the product_property_representation_schema in Part 41.

Issue	**11 (UK-11)**	*Status*	**Closed**
Author:	Julian Fowler	*Disposition:*	Accepted
Clause:	4.4.6		
Class'n:	Minor Technical	4.4.6	

Description:

The definition of this entity type states that a functional defined transformation is defined by an explicit transformation. However, there is no reference in the structure of the data type to anything that is recognizable as a function.

Proposed resolution:

Provide an improved definition that shows how this entity type is used to specify a transformation using a function.

Actual resolution:

Added text with examples: function shall be specified in a schema that specializes the entity type, either structurally or by constraining the contents/usage of the .description attribute.

Issue	**12 (UK-11)**	*Status*	**Closed**
Author:	Julian Fowler	*Disposition:*	Accepted
Clause:	Annex B		
Class'n:	Editorial	Annex B	

Description:

The use of ASN.1 in this annex is incorrect.

Proposed resolution:

The object identifier should be:

{iso standard 10303 part{43} version{2}}

A NOTE should be added stating that this is the identifier that *will* apply to the published IS version. Requirements for identification of parts or schemas at pre-IS status should be satisfied using other national/local identification schemes.

Actual resolution:

Annex modified as proposed. See WG10 resolution to SEDS 265 for details.

Issue	**13 (UK-13)**	*Status*	**Transferred**
Author:	Ray Goult	*Disposition:*	Accepted
Clause:	Cover sheet		
Class'n:	Editorial	Cover sheet	

Description:

There is a mis-match between the title used in the NWI proposal and that of the document itself. The NWI says 'STEP Integrated generic resource', the actual document (correctly says 'Integrated generic resource'.) I was under the impression that STEP is not actually used as an abbreviation in the parts of 10303.

Proposed resolution:

I do not think any action is needed here.

Actual resolution:

No action necessary for Part 43. Transferred to SC4 Secretariat to check that the Part name is correct in the SC4 and ISO CS databases.

Issue	**14 (UK-14)**	*Status*	**Closed**

Author:	Ray Goult	*Disposition:*	Accepted

Clause: Foreword

Class'n: Editorial

Foreword

Description:

The list of parts is clearly out of date and incomplete e.g. parts 107, 519 and 520 are missing but are active work items.(Difficult to keep this up to date).

Proposed resolution:

Update the list and amend the introductory text describing the series numbers accordingly.

Actual resolution:

List of parts has been replaced by a URL.

Issue	**15 (UK-15)**	*Status*	**Closed**

Author:	Ray Goult	*Disposition:*	Accepted

Clause: 4.2.5 (p8)

Class'n: Editorial

4.2.5 (p8)

Description:

A comparison with the IS edition shows that some important statements in this section which are important facts have been relegated to the status of NOTE in this edition.

In particular NOTE 2 on this page should be a normative statement.

Proposed resolution:

Remove the designation NOTE where it is inappropriate.

Actual resolution:

These were turned into notes as a result of Pascal Huau's qualification review of a previous draft of the document.

Option 1. No change.
Option 2. Reword as normative text.
Option 3. Leave as notes, but replace the use of entity type names by clause references.

Agreed to follow option 2, i.e., to accept the proposed resolution. Wording in each case to be reviewed and modified as necessary.

Issue	**16 (UK-16)**	*Status*	**Closed**

Author:	Ray Goult	*Disposition:*	Accepted

Clause: 4.2.5 (p8)

Class'n: Editorial
                                        4.2.5 (p8)

Description:

The last - in this section contains the phrase 'Another function, similar to a transformation, is one where all the elements in A are used as a single element in B.' This does not seem to comply with the ordinary meaning of funtion, still less with the more precise meaning assumed (i.e, f(x)) in the rest of this section. (see p7).

Proposed resolution:

Replace by 'Another usage of a transformation type operation is one where ...'.

Actual resolution:

Proposed resolution is accepted.

Issue	**17 (UK-17)**	*Status*	**Closed**

Author:	Ray Goult	*Disposition:*	Accepted

Clause: 4.2.5 (p8)

Class'n: Editorial
                                        4.2.5 (p8)

Description:

This is a rather complicated area and I do not think that this particular section is as helpful as it might be. There appear now to be three separate mechanisms wherby uncertainty is attached:

- to an item, (from part 45)
- to a representation,
- or to a representation_context.

The first section on page 8 seems to infer only two of these (the first statement is merely saying ther may be uncertainty but says nothing about how it is represented.)

Proposed resolution:

Re-write this section collecting all statements relating to any one of the above together. (should not 'one or more representation' be 'one or more representations'?

Actual resolution:

Need to improve and add to text to made this clearer. See also UK-9. Text has been rewritten/modified to address this issue.

Issue	**18 (UK-18)**	*Status*	**Closed**

Author:	Ray Goult	*Disposition:*	Accepted

Clause: 4.4.1

Class'n: Editorial

4.4.1

Description:

Note 9 refers to upward compatible with ISO 10303-41:1994, should not this, and other similar references, be to ISO 10303-43:1994.

Proposed resolution:

Actual resolution:

All references corrected to ISO 10303-43:1994.

Issue	**19 (UK-19)**	*Status*	**Closed**

Author: Ray Goult   *Disposition:*   Rejected

Clause: 4.4.10

Class'n: Minor Technical

4.4.10

Description:

This really is an ugly solution in the interests of upward compatibilty it invites recursive use to produce a representation consisting of items which are compound_representation_items which are lists of compound_items etc.

Proposed resolution:

Since the original representation supported SET, I personally see no application for the compound_item_definition which is a SET

Actual resolution:

The intention of this construct *is* to provide repeated representation_items, e.g., for tables. Agreed to add one or more further examples.

Issue	**20 (UK-20)**	*Status*	**Closed**

Author: Ray Goult   *Disposition:*   Accepted

Clause: 4.4.5

Class'n: Major Technical

4.4.5

Description:

The detailed description of this entity fails to define the semantics in so far as there is a total mismatch between what the definition here appears to be saying and a usage of this entity in ATS part 303.

The definition appears to be saying (for geometric objects):

rep_1 is related to rep_2 in the sense that the application of the transformation to rep_1 could produce rep_2.

As I read it, it differs from mapped_item in that it does not DEFINE rep_2 (rep_2 requires an independent definition), this entity merely notes the relationship between the two existing representations.

Is this correct? If so the text needs considerable clarification since it is being used repeatedly in 303 to define multiple copies of a given geometric object (defined in item_2) with item_1 defining the context and host object (a plate with holes in one example) into which the copies are placed.

If my interpretation is incorrect, then, the descriptive text still needs clarification since my interpretation is a reasonable one for the descriptive text currently provided.

The new note 10 is not helpful and should be replaced by a useful example.

Proposed resolution:

Actual resolution:

Closed by the addition of examples in mapped_item and representation_relationship. The usage in AP203 and ATS303 depends on the inference, by an application, of the shape of an assembly from the relationships among the shapes of its components.

Issue	**21 (UK-21)**	*Status*	**Closed**
Author:	Ray Goult	*Disposition:*	Accepted
Clause:	4.5.2		
Class'n:	Major Technical	4.5.2	

Description:

There is a reference in the documentation of this function to an entity type definitional_representation_item, what is this? it is not defined in this part nor is it referenced from another part.

Also the description tries to draw a distinction between being referenced by a representation and being referenced by a definitional_representation why is this distinction necessary since definitional_representation is defined as a subtype of representation.

Proposed resolution:

If there is to be any special mention here of definitional_representation it should make the important point that item is NOT in context if it is referenced by a definitional_representation which is in turn referenced by an item in the context.

(Example a pcurve in a 3D geometric context has an attribute reference_to_curve which is a definitional_representation, the item for this definitional_representation exists in a separate 2D context.)

Actual resolution:

The references to definitional_representation and definitional_representation_item are erroneous and are to be removed. No change to the function is required.

Issue	**22 (SWE-1)**	*Status*	**Closed**
Author:	Not specified	*Disposition:*	Accepted
Clause:	whole document		
Class'n:	Major Technical	whole document	

Description:

Improving the implementation by generic assignments of id, name, role and description.

The number of entities has grown significantly because new entities have been introduced in order to assign attributes to already existing entities. The common experience at both Scania and Volvo tells that the effort required for the development, maintenance and control of model based software grows linearly with the number of entities. Therefore the entity count should be kept to a minimum.
This is a generic issue applicable to parts 41, 43, 44.

Proposed resolution:

For each of the attributes id, name, role and description there should be a single generic assignment entity which can connect the attribute to each entity that requires it. This can be done pointing at a SELECT type.

Actual resolution:

Closed by resolution to issues 24 and 26.

Issue	**23 (SWE-2)**	*Status*	**Closed**
Author:	Not specified	*Disposition:*	Accepted
Clause:	whole document		
Class'n:	Major Technical	whole document	

Description:

Enabling the use of EXPRESS based tools for implementation purposes.

It is current practice to have "null" values in mandatory attributes in exchange files. This is inconsistent with the definition of mandatory attributes in ISO 10303-11. Therefore the implementation of STEP using standard EXPRESS based tools requires changes to the original schemas by each single implementor. This will inevitably introduce inconsistencies between different implementations.

This is a generic issue applicable to all parts of the integrated resources.

In addition the use of mandatory attributes is over constraining the integrated resources with

regard to data sharing and data integration applications.

Proposed resolution:

There should be a check of all mandatory attributes in the integrated resources. The check should reveal whether or not it is appropriate to have an attribute mandatory in all application scenarios. This will not affect the upward compatibility for these parts.

Actual resolution:

Closed by resolution to GER-5.

Issue	**24 (GER-1)**	*Status*	**Closed**
Author:	Bernd G. Wenzel	*Disposition:*	Accepted
Clause:	4.4.1, 4.4.18		
Class'n:	Major Technical	4.4.1, 4.4.18	

Description:

This issue is an exact duplicate of issue GER-41-1 against ISO/CD 10303-41:1997.

The new edition of ISO 10303-41 extends the attribute set of the following entity by an attribute id:
* action
The new edition of ISO 10303-43 extends the attribute set of the following entity by an attribute id:
* representation

This is consistently done by the addition of a new entity xxxx_identifier.

This approach raises the entity count and by doing that increases the implementation complexity unnecessarily. The structural equivalence between all these cases should be used to simplify implementation as described below. Doing this would also simplify this kind of extension in the future.

Proposed resolution:

The following entity should be deleted from ISO 10303-41:
* action_identifier
The following entity should be deleted from ISO 10303-43:
* representation_identifier

The following piece of code should be introduced in an appropriate schema in ISO 10303-41:

```
TYPE
  id_assignment_select = SELECT (action,
                 representation);
END_TYPE,
```

```
ENTITY id_assignment;
  identified_object : id_assignment_select;
  id            : identifier;
END_ENTITY;

FUNCTION get_id (obj : id_assignment_select)
         : SET [0:?] OF id_assignment;
  RETURN (bag_to_set (
    USEDIN (obj, ëthis_schema.ID_ASSIGNMENT.IDENTIFIED_OBJECTí)));
END_FUNCTION;
```

In addition in each of the entities in the SELECT list of id_assignment, the inverse attribute id should be replaced by the derived attribute id, as exemplified below for the entity action:

```
ENTITY action;
  ...
DERIVE
  id : SET [0:1] OF id_assignment := get_id (SELF);
  ...
END_ENTITY;
```

In addition, the necessary REFERENCE statements need to be included into the EXPRESS code to make this version work according to the visibility rules of EXPRESS.
This issue has been classified as major technical, because the solution proposed above represents a major technical change of the document. This classification however does not mean, that the issue is an obstacle for accepting the document as CD.

Actual resolution:

Incorporate resolution as proposed: agreed by vote of WG12 at SCRA workshop. The main part of the solution is included in Part 41: the schema name, entity type names, etc. will be provided by Part 41 project.

The Part 41 entity types will be called id_attribute, name_attribute, description_attribute. In Part 43, the INVERSE is replaced by:

```
DERIVE
  id            : identifier := get_id_value (SELF);
  description    : text := get_description_value (SELF);
WHERE
 WR1: SIZEOF (USEDIN (SELF, 'BASIC_ATTRIBUTE_SCHEMA.' +
         'ID_ATTRIBUTE.IDENTIFIED_ITEM')) <= 1;
 WR2: SIZEOF (USEDIN (SELF, 'BASIC_ATTRIBUTE_SCHEMA.' +
         'DESCRIPTION_ATTRIBUTE.DESCRIBED_ITEM'))
         <= 1;
```

Issue   **25 (GER-2)**   *Status*   **Closed**

Author:	Bernd G. Wenzel	*Disposition:*	Deferred
Clause:	4.4.1		
Class'n:	Major Technical	4.4.1	

Description:

Avoid unnecessary constraints in the number of ids in resource models.

This issue is an exact duplicate of issue GER-41-2 against ISO/CD 10303-41:1997.

Although the structure chosen to add ids to entities, which didn't have that attribute before, is sufficient to support more than one, the inverse attribute id is restricted to a maximum of one id in all entities using this mechanism. Such constraints should be left to APs.

Proposed resolution:

In the declaration of all entities using this mechanism, the upper bound in the inverse set of xxxx_identifier should be raised from 1 to ?. Should issue GER-41-1/GER-43-1 be accepted, the same modification should be done to the derived set of id_assignments.

This issue has been classified as major technical, because the solution proposed above represents a major technical change of the document. This classification however does not mean, that the issue is an obstacle for accepting the document as CD.

Actual resolution:

Deferred to a future edition of this Part.

Issue	**26 (GER-3)**	*Status*	**Closed**
Author:	Bernd G. Wenzel	*Disposition:*	Accepted
Clause:	4.4.1, 4.4.19		
Class'n:	Major Technical	4.4.1, 4.4.19	

Description:

Generic DESCRIPTION assignment

This issue is an exact duplicate of issues GER-41-8 against ISO/CD 10303-41:1997 and GER-44-3 against ISO/CD 10303-44:1997.

The new edition of ISO 10303-41 extends the attribute set of the following entities by an attribute description:
* application_context
* property_definition_representation
* context_dependent_shape_representation
* action_request_solution
* approval_role
* person_role

* organization_role
* person_and_organization
* person_and_organization_role
* date_role
* time_role
* date_time_role
* effectivity
* external_source

The new edition of ISO 10303-43 extends the attribute set of the following entities by an attribute description:
* representation

The new edition of ISO 10303-44 extends the attribute set of the following entities by an attribute description:
* configuration_design

This is done consistently by the addition of the new entity xxxx_description.

This approach raises the entity count and by doing that increases the implementation complexity unnecessarily. The structural equivalence between all these cases should be used to simplify implementation as described below. Doing this would also simplify this kind of extension in the future.

Proposed resolution:

The following entities should be deleted from ISO 10303-41:

* application_context_description
* property_definition_representation_description
* context_dependent_shape_representation_description
* action_request_solution_description
* approval_role_description
* person_role_description
* organization_role_description
* person_and_organization_description
* person_and_organization_role_description
* date_role_description
* time_role_description
* date_time_role_description
* effectivity_description
* external_source_description

The following entities should be deleted from ISO 10303-43:
* representation_description

The following entities should be deleted from ISO 10303-44:
* configuration_design_description

The following piece of code should be introduced in an appropriate schema in ISO 10303-41:

```
TYPE
  description_assignment_select = SELECT (application_context,
                           property_definition_representation,
                           context_dependent_shape_representation,
                           action_request_solution,
                           approval_role,
                           person_role,
                           organization_role,
                           person_and_organization,
                           person_and_organization_role,
                           date_role,
                           time_role,
                           date_time_role,
                           effectivity,
                           external_source,
                           representation,
                           configuration_design);
END_TYPE,

ENTITY description_assignment;
  described_object : name_assignment_select;
  name           : text;
END_ENTITY;

FUNCTION get_description (obj : description_assignment_select)
              : SET [0:?] OF description_assignment;
  RETURN (bag_to_set (
    USEDIN (obj, ëthis_schema.DESCRIPTION_ASSIGNMENT.DESCRIBED_OBJECTí)));
END_FUNCTION;
```

In addition in each of the entities in the SELECT list of description_assignment, the inverse attribute description should be replaced by the derived attribute description, as exemplified below for the entity action_request_solution:

```
ENTITY action_request_solution;
  ...
DERIVE
  description : SET [0:1] OF description_assignment := get_description (SELF);
  ...
END_ENTITY;
```

In addition, the necessary REFERENCE statements need to be included into the EXPRESS code to make this version work according to the visibility rules of EXPRESS.

This issue has been classified as major technical, because the solution proposed above represents

a major technical change of the document. This classification however does not mean, that the issue is an obstacle for accepting the document as CD.

Actual resolution:

Incorporate resolution as proposed: agreed by vote of WG12 at SCRA workshop - see issue 24 (GER-1) for details.

Issue	**27 (GER-4)**	*Status*	**Closed**
Author:	Bernd G. Wenzel	*Disposition:*	Deferred
Clause:	4.4.1		
Class'n:	Major Technical	4.4.1	

Description:

Avoid unnecessary constraints on the number of descriptions in resource models.

This issue is an exact duplicate of issues GER-41-9 against ISO/CD 10303-41:1997 and GER-44-4 against ISO/CD 10303-44:1997.

Although the structure chosen to add descriptions to entities, which didn't have that attribute before, is sufficient to support more than one, the inverse attribute description is restricted to a maximum of one description in all entities using this mechanism. Such constraints should be left to APs.

Proposed resolution:

In the declaration of all entities using this mechanism, the upper bound in the inverse set of xxxx_description should be raised from 1 to ?. Should issue GER-41-8/GER-43-3/GER-44-3 be accepted, the same modification should be done to the derived set of description_assignments. This issue has been classified as major technical, because the solution proposed above represents a major technical change of the document. This classification however does not mean, that the issue is an obstacle for accepting the document as CD.

Actual resolution:

Deferred to a future edition of this Part.

Issue	**28 (GER-5)**	*Status*	**Closed**
Author:	Bernd G. Wenzel	*Disposition:*	Accepted
Clause:	All EXPRESS models		
Class'n:	Major Technical	All EXPRESS models	

Description:

Mandatory attributes considered harmful in integrated resources.

This issue is an exact duplicate of issues GER-41-13 against ISO/CD 10303-41:1997 and GER-44-6 against ISO/CD 10303-44:1997.

The integrated resources of STEP contain very many mandatory attributes and only a very limited number of optional ones. This creates problems occasionally during interpretation, as this means in principle, that the users of an AP need to provide information in an exchange file or database, for which they have no industry or application requirement. To avoid this situation, it is current interpretation practice to accept the null value (EXPRESS ?) as a legal value for mandatory attributes. This is inconsistent with ISO 10303-11, which defines, that the null value is a legal value for optional attributes but not for mandatory ones.

This inconsistency is a problem for all STEP implementers, as it makes the usage of off-the-shelf EXPRESS based tools impossible for the implementation of STEP application protocols.

Proposed resolution:

All EXPRESS models in the integrated resources of STEP need to be carefully reworked. We need to check, whether any mandatory attribute is required to preserve the structural and informational integrity of the described information or not. The preservation of informational completeness needs to be left to the application protocols, as it can be defined only within the context of an application domain or usage scenario.

This issue deals with a problem of the integrated resources as a whole. It is not local to ISO 10303-43, nor has it been introduced with the new revision. However the required modifications are fully upward compatible. Therefore it makes sense to introduce those changes gradually whenever a part of the STEP resources is out for revision.

This issue has been classified as major technical, because the solution proposed above represents a major technical change of the document. This classification however does not mean, that the issue is an obstacle for accepting the document as CD.

Actual resolution:

As in Parts 41 and 44, all .description attributes are to be OPTIONAL. .name attributes are unchanged. Further review of other attributes is deferred to a future edition of this Part.

Issue	**29 (GER-6)**	*Status*	**Transferred**
Author:	AP214 Team, DiK	*Disposition:*	Accepted
Clause:	4.4		
Class'n:	Major Technical	4.4	

Description:

The model extent is an important concept in CAD systems. This is not supported by the integrated resource sufficiently, as the concept uncertainty_measure_with_unit does not match the concept of model extent.

Proposed resolution:

Alternative a) Create a subtype geometric_representation_context_with_extent of geometric_representation_context that refers a positive_length_measure_with_unit (preferred).

ENTITY geometric_representation_context_with_extent;
SUBTYPE OF geometric_representation_context;
extent: positive_length_measure_with_unit;
END_ENTITY;

Alternative b): Introduce a generic data association mechanism for representation_context.

ENTITY representation_context_assignment
  ABSTRACT SUPERTYPE;
  assigned_representation_context: representation_context;
END_ENTITY;

Then in the AP's AIM (or in Part 42 New Edition):
ENTITY model_extent_assignment
  SUBTYPE OF (representation_context_assignment);
  extent: positive_length_measure_with_unit;
RETYPED assigned_representation_context = geometric_representation_context;
END_ENTITY;

Actual resolution:

Issue is unclear: what are the requirements? We have identified two possibilities: the maximum coordinate values possible in the sending/receiving system, or the maximum actual coordinates for a given exchange. In either case this appears to be metadata rather than product data; or, this could be modelled using existing IRs as property of a representation_context (AP would create subtype of representation_context AND characterized_object). The latter is the solution proposed by JPF during WG12 discussion in Orlando.

Juergen Mohrmann: comes from Round Table discussion on tolerances. Proposed solution is to transfer to Part 42.

Issue	**30 (FRA-1)**	*Status*	**Closed**
Author:	Pascal Huau	*Disposition:*	Accepted
Clause:	4.4.8		
Class'n:	Major Technical	4.4.8	

Description:

This entity has been designed to enable to transfer list of values of physical properties. That implies that each element of the list has to be a measure_representation_item, which is a subtype of measure_with_unit.

Even if the context of the containing representation is defined as a global_unit_assigned_context,

the attribute unit_component inherited from measure_with_unit has to be assigned.

In order to avoid this complex instantiation scheme, a new entity should be created, enabling to specify the value of a physical quantity as a kind of rep_item for which the unit shall be defined in a global_unit_assigned_context.

Proposed resolution:

Create the entity unit_context_based_representation_item, as follows:

ENTITY unit_context_based_representation_item
SUBTYPE OF (representation_item);
¸ value: measure_value;
END_ENTITY;

with the following definition:
"A unit_context_based_representation_item is a kind of representation_item that specifies the value of a measure. The unit in which the value is expressed shall be defined in a global_unit_assigned_context for each of the representations that contains the unit_context_based_representation_item.
For any of these instances of representation, the kind of measure that is given a value with the entity unit_context_based_representation_item, shall be specified by an instance of property_definition associated with the representation through property_definition_representation.

Value: specifies the value of the considered measure."

Actual resolution:

This issue is not really about compound_representation_item: rather, it is about the relationship between measure_representation_item and global_unit_assigned_context. If included, the proposed resolution will need an added constraint that the context of all using_representations shall be global_unit_assigned_context. Better entity name? Is the type of the value "visible" in instances? A constraint would be needed to prevent instantiation with measure_representation_item. Agreed to defer: too many technical issues to include right now.

Subsequent to the SCRA workshop this issue has been reopened: there is a problem with measure_representation_item in APs that require global assignment of units. Closed by the addition of value_representation_item (added in WG12 N198).

Issue	**31 (FRA-2)**		*Status*	**Closed**
Author:	Pascal Huau		*Disposition:*	Rejected
Clause:	4.4.4			
Class'n:	Editorial	4.4.4		
Description:				

The note 1 should not be a note but a normative text and "may" should be replaced by "shall". Otherwise, that means that we allow the developers or the users of any annotated EXPRESS schema based on this release of ISO 10303-43 to use this entity without actually defining what the relationship means nor what is the respective role of rep_1 and rep_2.

Note: adding this normative text does not create any upward compatibility problem since it defines a constraint for the developers or users of new annotated EXPRESS schema, and does not introduce any change in the neutral files.

Proposed resolution:

See above.

Actual resolution:

After much discussion with the project leaders and editors of Parts 41 and 44 it was agreed that, although the intent of this issue is valid, it cannot be supported by normative text. Constraints on the intended usage of IR constructs for STEP should be stated in methods documents, such as the Procedures for Application Interpretation or the AIM Development Guidelines. In addition, specialization of the semantics of a relationship can occur in many ways, not just in the EXPRESS specification. Finally, it *could* be possible that an application's requirements are satisfied are satisfied by a simple association that states that rep_1 and rep_2 are related, without stating the nature of the relationship.

All statements of this type have been left as notes (informative), with some minor wording changes.

Issue	**32 (FRA-3)**		*Status*	**Closed**
Author:	Pascal Huau		*Disposition:*	Rejected
Clause:	4.4.5			
Class'n:	Editorial	4.4.5		

Description:

The note 1 should not be a note but a normative text and "may" should be replaced by "shall". Otherwise, that means that we allow the developers or the users of any annotated EXPRESS schema based on this release of ISO 10303-43 to use this entity without actually defining what the relationship means nor what is the respective role of rep_1 and rep_2.

Note: adding this normative text does not create any upward compatibility problem since it defines a constraint for the developers or users of new annotated EXPRESS schema, and does not introduce any change in the neutral files

Proposed resolution:

See above.

Actual resolution:

See comments on issue 31 (FRA-2).

Issue	**33 (FRA-4)**	*Status*	**Closed**

Author:	Pascal Huau	*Disposition:*	Rejected
Clause:	4.4.6		
Class'n:	Editorial	4.4.6	

Description:

The note 1 should not be a note but a normative text and "may" should be replaced by "shall". Otherwise, that means that we allow the developers or the users of any annotated EXPRESS schema based on this release of ISO 10303-43 to use this entity without actually defining the function.

Note: adding this normative text does not create any upward compatibility problem since it defines a constraint for the developers or users of new annotated EXPRESS schema, and does not introduce any change in the neutral files.

Proposed resolution:

See above.

Actual resolution:

See comments on issue 31 (FRA-2).

Issue	**34 (FRA-5)**	*Status*	**Closed**

Author:	Pascal Huau	*Disposition:*	Accepted
Clause:	4.4.7		
Class'n:	Editorial	4.4.7	

Description:

The second paragraph does not define the entity but only provides information about its usage. Therefore, according to ISO directives Part 3 (6.5.1), it should be an informative Note.

Proposed resolution:

See above.

Actual resolution:

First paragraph of the definition of representation_item has been reworded. Second paragraph has been turned into a note, as proposed. An example of a representation_item that participates in the definition of another has been added.

Issue	**35 (FRA-6)**	*Status*	**Closed**

Author:	Pascal Huau	*Disposition:*	Accepted

Clause: 4.4.8

Class'n: Editorial
                                        4.4.8

Description:

The third sentence of the definition does not define the entity but only provides information about its usage. Therefore, according to ISO directives Part 3 (6.5.1), it should be an informative Note.

Proposed resolution:

See above.

Actual resolution:

Proposed resolution is accepted

Issue	**36 (FRA-7)**	*Status*	**Closed**
Author:	Pascal Huau	*Disposition:*	Rejected

Clause: 4.4.9

Class'n: Editorial
                                        4.4.9

Description:

The note 1 should not be a note but a normative text and "may" should be replaced by "shall". Otherwise, that means that we allow the developers or the users of any annotated EXPRESS schema based on this release of ISO 10303-43 to use this entity without actually defining how the mapping is made.

Note: adding this normative text does not create any upward compatibility problem since it defines a constraint for the developers or users of new annotated EXPRESS schema, and does not introduce any change in the neutral files.

Proposed resolution:

See above.

Actual resolution:

See comments on issue 31 (FRA-2).

Issue	**37 (FRA-8)**	*Status*	**Closed**
Author:	Pascal Huau	*Disposition:*	Rejected

Clause: 4.4.11

Class'n: Editorial
                                        4.4.11

Description:

The note 1 should not be a note but a normative text and "may" should be replaced by "shall". Otherwise, that means that we allow the developers or the users of any annotated EXPRESS schema based on this release of ISO 10303-43 to use this entity without actually defining what the relationship means nor what is the respective role of the related rep_items.

Note: adding this normative text does not create any upward compatibility problem since it is a new entity.

Proposed resolution:

See above.

Actual resolution:

See comments on issue 31 (FRA-2).

Issue	**38 (FRA-9)**	*Status*	**Closed**
Author:	Pascal Huau	*Disposition:*	Rejected
Clause:	4.4.12		
Class'n:	Editorial		

4.4.12

Description:

The note 1 should not be a note but a normative text and "may" should be replaced by "shall". Otherwise, that means that we allow the developers or the users of any annotated EXPRESS schema based on this release of ISO 10303-43 to use this entity without actually defining the function.

Note: adding this normative text does not create any upward compatibility problem since it defines a constraint for the developers or users of new annotated EXPRESS schema, and does not introduce any change in the neutral files.

Proposed resolution:

As above.

Actual resolution:

See comments on issue 31 (FRA-2).

Issue	**39 (NL-1)**	*Status*	**Transferred**
Author:	Hans Teijgeler	*Disposition:*	Rejected
Clause:	whole document		
Class'n:	Major Technical		

whole document

Description:

This CD proposal is unsatisfactory from a technical standpoint in that it does not follow the rules which have been established by SC4 in previous documents and practice for the developement of integrated resource data models. The extentions of the integrated resources were developed with a top priority of maintaining upward compatability in the strictest sense with existing ISO 10303 products. While the goal of upward compatability is an honorable one, it is not pragmatic at this time.

The 1994 release of Part 43 was developed to support the requirements defined in two ISO 10303 Application Protocols, Part 201 and Part 203. Although they do support the requirements layed out in those two APs, many more requirements (mostly for STRING type attributes) have been identified in approximately 18 new Application Protocols that are in various stages of development within SC4. In fact, requirements that were identified in parallel with the development of those two APs during the existence of the Intial Release tiger team were discluded from the initial release due to the schedule crunch at the time. Those same requirements upon being resubmitted in one way or another, mostly through SEDS reports are being included incorrectly, or not at all in the name of upward compatability.

These APs are being forced to use inefficient, incorrect and unstable Integrated Resource constructs so that implementations of two APs will not be required to make minor changes to their software.

This situation is inadequate for the needs of the upcoming APs.

Proposed resolution:

SC4 should approach this CD release of the Integrated Resources as an opportunity to fix errors that have been identified by new types of requirements and add the capability to support any new requirements (sufficient generic attribution) while remaining consistent with the architecture and methods of STEP.

Actual resolution:

Transferred to the SC4 Chair and Secretariat. Direction to WG12 was to address issues using strict upward compatibility as the primary criterion in reviewing alternative proposed solutions.

Issue	**40 (NL-2)**	*Status*	**Closed**
Author:	Hans Teijgeler	*Disposition:*	Rejected
Clause:	4.4.1		
Class'n:	Major Technical	4.4.1	

Description:

The description attribute of the representation is modelled incorrectly as an inverse. The description attribute holds textual information that describes an instance of the entity and is correctly modelled using an attribute of type TEXT.

Proposed resolution:

Add a description attribute of type text to the representation entity and remove the INVERSE attribute.

Actual resolution:

Closed by resolution to issue 26.

Issue	**41 (NL-3)**	*Status*	**Closed**
Author:	Hans Teijgeler	*Disposition:*	Rejected
Clause:	4.4.19		
Class'n:	Major Technical	4.4.19	

Description:

The representation_description entity does not model a concept and is inappropriate for Part 43. It is merely a structural "work around" and is unacceptable as a Part 43 entity. The entities in Part 43 shall represent concepts used within the context of product data. This entity is not representative of a real world concept, but a characteristic of another entity.

Proposed resolution:

Model the characteristic correctly as an attribute of the representation entity.

Actual resolution:

Closed by resolution to issue 26.

Issue	**42 (NL-4)**	*Status*	**Closed**
Author:	Hans Teijgeler	*Disposition:*	Rejected
Clause:	4.4.1		
Class'n:	Major Technical	4.4.1	

Description:

The id attribute of the representation entity is modelled incorrectly as an inverse. The id attribute specifies an identifier by which an instance of the entity is identified and is correctly modelled using an attribute of type IDENTIFIER.

Proposed resolution:

Add an id attribute of type identifier to the representation entity and remove the INVERSE attribute.

Actual resolution:

Closed by resolution to issue 24.

Issue	**43 (NL-5)**	*Status*	**Closed**

Author: Hans Teijgeler   *Disposition:*   Rejected

Clause: 4.4.19

Class'n: Major Technical
                                                          4.4.19

Description:

The representation_identifier entity does not model a concept and is inappropriate for Part 43. It is merely a structural "work around" and is unacceptable as a Part 43 entity. The entities in Part 43 shall represent concepts used within the context of product data. This entity is not representative of a real world concept, but a characteristic of another entity.

Proposed resolution:

Model the characteristic correctly as an attribute of the representation entity.

Actual resolution:

Closed by resolution to issue 24.

Issue   **44 (USA-1)**   *Status*   **Closed**

Author: Not specified   *Disposition:*   Accepted

Clause: Foreword, Table 1

Class'n: Editorial
                                                          Foreword, Table 1

Description:

For entity data type 'representation', a new 'id' INVERSE attribute was added, rather than the listed 'name' INVERSE attribute.

Proposed resolution:

Replace 'name' with 'id' within the Attribute column of that row of Table 1.

Actual resolution:

Error corrected in WG12 N198. This text has been removed in N220.

Issue   **45 (USA-2)**   *Status*   **Closed**

Author: Not specified   *Disposition:*   Accepted

Clause: general

Class'n: Editorial
                                                          general

Description:

Throughout the document, notes related to upward compatibility refer to ISO 10303-41:1994.

Proposed resolution:

Change to ISO 10303-43:1994.

Actual resolution:

See also UK-18.

Issue	**46 (USA-3)**	*Status*	**Closed**	
Author:	Not specified	*Disposition:*	Accepted	
Clause:	4.4.6			
Class'n:	Minor Technical	4.4.6		

Description:

It seems difficult to understand how this entity could be used by implementations. Its EXPRESS definition includes nothing more than 'name' and 'description' attributes. Its textual definition states that an explicit transformation function will exist that will map elements in domain A into elements in range B. Further, NOTE 1 specifies that this function may either be specified explicitly within schemas that will use and specialize this entity or within an agreement between exchange partners.

Within NOTE 1, the word 'may' makes little sense, since a function must be explicitly define somewhere for this be entity to be understood and used correctly. It should be 'shall' and be part of the definition of the entity.

It is also very unclear how this specialization will be accomplished. Either a more detailed example, providing an explicit function, should be provided with this entity definition, or a separate subclause in an annex should provide insight how such a function can be defined and used.

Proposed resolution:

Provided within the description of this issue.

Actual resolution:

Closed by resolution to UK-11 (Note 1 becomes normative text).

Issue	**47 (USA-4)**	*Status*	**Closed**	
Author:	Not specified	*Disposition:*	Accepted	
Clause:	Index			
Class'n:	Editorial	Index		

Description:

Within ISO 10303, is there a pre-defined method of specifying items within an index for generic resource parts? The index of this Part is substantially inconsistent with those defined within the NWI CDs of Parts 41 and 44.

Proposed resolution:

Disregard this issue if no guidance on generic resource index creation is given. On the other hand, if there is, regenerate the index consistently with those found within Parts 41 and 44.

Actual resolution:

Contents for index modified, as agreed at 41/43/44 workshop in Long Beach (7/98)

Issue	**48 (USA-5)**	*Status*	**Closed**
Author:	Not specified	*Disposition:*	Accepted
Clause:	4.4.1		
Class'n:	Editorial	4.4.1	

Description:

Correct the definition of the 'id' attribute to be consistent with similar attributes defined within the NWIs of Parts 41 and 44.

Proposed resolution:

id: the representation_identifier that provides the primary identification of the representation. The id need not be specified.

Actual resolution:

Wording of definitions was agreed at the 41/43/44 workshop in Long Beach (7/98). All three parts should now be consistent.

Issue	**49 (USA-6)**	*Status*	**Closed**
Author:	Not specified	*Disposition:*	Accepted
Clause:	4.4.1		
Class'n:	Editorial	4.4.1	

Description:

Correct the definition of the 'description' attribute to be consistent with similar attributes defined within the NWIs of Parts 41 and 44.

Proposed resolution:

description: the representation_description that specifies the word or group of words that characterizes the representation. The description need not be specified.

Actual resolution:

Wording of definitions was agreed at the 41/43/44 workshop in Long Beach (7/98). All three parts should now be consistent.

Issue	**50 (USA-7)**	*Status*	**Closed**

Author:	Not specified	*Disposition:*	Accepted
Clause:	4.4.12		
Class'n:	Editorial		

4.4.12

Description:

Example 21 refers to attribute names which are not in accordance with those used to describe the entity item_defined_transformation.

Proposed resolution:

Replace the attribute names with transform_item_1 and transform_item_2.

Actual resolution:

Proposed resolution is accepted.

Issue	**51 (USA-9)**	*Status*	**Closed**
Author:	Not specified	*Disposition:*	Rejected
Clause:	4.4.11, 4.4.12		
Class'n:	Minor Technical		

4.4.11, 4.4.12

Description:

Having a chance to review the results of the upwards compatibility decisions made on issues raised against this part, I am not satisfied with the way the new entity representation_item_relationship has been defined, or how item_defined_transformation was not modified. The determination was that, although it's obvious that an item_defined_transformation is a subtype of a representation_item_relationship which constrains the relationship of the rep_items to be of a transformation nature only, it was not defined as a subtype. Hence, now we have 2 entities that are defined with the EXACT same list of attributes; a 'name', a 'description', and 2 rep_items that are defined to be related to one another. I am afraid that this will lead to improper and inconsistent interpretation of requirements, leading to interoperability problems.

Proposed resolution:

Keep the Chester recommended change of defining item_defined_transformation as a subtype of reprepsentation_item_relationship. This is not a physical file upwards compatibility issue, and I believe that SDAI implementation changes would be minimal. Further, this change will alleviate more
implementation and interpretation issues in the future. If accepted, remove NOTE 2 in 4.4.11.

Actual resolution:

For consistency, this should be rejected: the inclusion of product_relationship in Part 41, without modifying alternative_product_relationship in Part 44 suggests that such "implied" supertype/subtype relationships are acceptable under strict upward-compatibility considerations.

Issue	**52 (USA-10)**	*Status*	**Closed**

Author:　　Not specified　　　　　　　　　*Disposition:*　　Rejected

Clause:

Class'n:　　Minor Technical

Description:

Entity representation_item_relationship violates some of the most fundamental STEP architectural premises for resource definition, integration and interpretation. It is a named many to many reference with no other meaning. This is explicitly stated in the first informative note. I suspect the authors interpret it to have all meaning such that any specialized use of it is a restriction. In fact, because it has no meaning, any specialized use of it is a semantic extension, and, therefore, prohibited.

The only entities in IRs which are allowed to be extended in their interpretation are the administrative resources. For these there is at least a partial meaning to the IR construct, and the extension is only its assignment through a very specific syntactic pattern. The entity proposed here cannot be considered any type of variation on this.

The other nearly meaningless entities in the IRs are group and layer. In STEP and the using APs these have very limited semantics, with any additional semantics (e.g. the meaning of the group or engineering significance of a layer) existing outside the standard in a side contract between exchange partners. The significance here is the semantic extension is outside the standard, not just deferred from the IR to the AP AIM.

While the above exceptions are the most compelling, the consideration for this type of entity is especially troublesome when it relates two representation_items. Representation_items can be reasonably understood to have an attribute which is not explicitly modeled which is their context. This attribute (which generalizes completely) is easily understood if one considers the cartesian_point specialization. It describes a point in terms of its displacement relative to an unspecified origin. The origin is determined only through its context and the item's property of being "founded". The relationship entity being proposed here offers too much opportunity to confuse the contexts of related representation_items as its use is attempted in AP interpretation.

Proposed resolution:

I cannot propose an alternative because this entity has no semantics. As such, I cannot guess what UoF was being interpreted, and what more appropriate IR object might be proposed.

Actual resolution:

The text of this issue is correct in the sense that the specific semantics of this entity type are specified in using APs. These usages are being specified and (for STEP) standardized through documented interpretation practices. However, this is consistent with all other xxxx_relationship entity types in the IRs. Further consideration of this issue is effectively deferred to a future "major release" of the IRs.

Issue　　**53 (USA-11)**　　　　　　*Status*　　**Closed**

Author:　　Not specified　　　　　　　　　*Disposition:*　　Accepted

Clause: 4.4.13

Class'n: Editorial   4.4.13

Description:

The definition of this entity is overwhelmingly unclear. I do not consider myself an expert in representation structures. I also believe that many who will be needing to use this entity will not be

representation structures experts. The definition should be written in a way that a 'lay' person will be able to understand what this entity is and how it is to be used.

Proposed resolution:

I cannot provide a proposed solution, since I am still unclear what concept this entity is supposed to support.

Actual resolution:

Closed by resolution to UK-10.

Issue	**54 (USA-12)**	*Status*	**Closed**
Author:	Not specified	*Disposition:*	Accepted
Clause:	4.4.13		
Class'n:	Minor Technical 4.4.13		

Description:

WR1 is overly restrictive. It says that the representation_item that is identified shall belong to the set of items of the representation referred to by the attribute SELF\property_definition_representation.used_representation. A more relaxed and useful restraint would be that the item was "founded" in the representation referred to by the attribute SELF\property_definition_representation.used_representation.

Proposed resolution:

WR1: the representation referred to by the attribute SELF\property_definition_representation.used_representation shall be in the using_representations of the identified_item.

WR1: SELF\property_definition_representation.used_representation IN using_represenations(SELF\item_identified_representation_usage.identified_item);

Actual resolution:

Accepted. Incorporated into resolution of UK-10.

Issue	**55 (SEDS-5)**	*Status*	**Closed**
Author:	Shantanu Dhar	*Disposition:*	Accepted
Clause:	4.5.3		

Class'n: Major Technical   4.5.3

Description:

Due to the fact that COMPOSITE_CURVE_SEGMENT is not a subtype of REPRESENTATION_ITEM, it is not possible to instantiate a COMPOSITE_CURVE_SEGMENT without having its attribute PARENT_CURVE violate REPRESENTATION_ITEM.WR1.

This problem also applies to SURFACE_PATCH.

Conditions Under Which the Issue Was Discovered: Trying to create an instance of COMPOSITE_CURVE_SEGMENT.

Proposed resolution:

Option 1 - modify FUNCTION using_representations so that composite_curve_segment and surface_patch are somehow "excluded" from the test, or is generalized to allow non rep_items in the "founding" chain.
Option 2 - require at the interpretation/implementation level a requirement that (for example) the curve that is referenced by a composite curve segment is founded in the same representation as the composite curve of which the segment is a part (this is Ray Goult's proposal in his email of 3/13/98).
Option 3 - use a WHERE rule in composite_curve and surface_patch in Part 42 to enforce the constraint in option 2.

Actual resolution:

Resolution to this issue is as discussed and agreed by WG12 at the Beijing meeting, and results in: addition of new entity data type founded_item, new select type founded_item_select, new function using_items and modifications to function using_representations.

Issue	**56 (SEDS-37)**	*Status*	**Transferred**

Author: Shantanu Dhar   *Disposition:*   Rejected

Clause:

Class'n: Major Technical

Description:

Problem Description: A PCURVE requires that its defining curve be a 2d curve. This is enforced by PCURVE_WR3. Therefore, all the defining geometry (i.e. all "used entity instances") of this defining curve should be 2d as well.

However, a combination of two rules disallows this:

1. The AP203 global rule GEOMETRIC_REPRESENTATION_ITEM_3D permits 2d instances only in the aggregate ITEMS of a DEFINITIONAL_REPRESENTATION.

2. The local rule PCURVE_WR1 requires that the cardinality of this aggregate be 1. This single

member is the defining curve of the PCURVE.

Therefore, all the 2d defining geometry (for the curve that is the member of the aggregate ITEMS) will violate GEOMETRIC_REPRESENTATION_ITEM_3D.

This, in turn, implies that it is difficult (if not impossible) to instantiate PCURVEs.

Conditions Under Which the Issue Was Discovered: Trying to instantiate PCURVEs.

Proposed resolution:

Relax GEOMETRIC_REPRESENTATION_ITEM_3D so that it requires that all the 2d defining geometry be used by a top level 2d entity that is in the aggregate ITEMS. This would amount to finding the "using" REPRESENTATIONs (in much the same way as is done in the Pt 43 function USING_REPRESENTATIONS) for all 2d instances and ensuring that they all have 2d contexts.

Actual resolution:

Transfer (back) to AP203 - the issue needs to be addressed there, not in Part 43.